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Evaluation of fruit quality in a lemon cybrid with mandarin mitochondria

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ABSTRACT: Nutritional and organoleptic qualities of fruit are currently very important objectives for plant breeders. Organic acids, sugars and carotenoids were studied by high liquid chromatography on the pulp of a citrus cybrid. This cybrid named 'WLM + EUR' (*Citrus deliciosa* Ten.) + (*Citrus limon* (L.) Burm.), inherited nuclear and chloroplasts genomes of Eureka lemon (*Citrus limon* (L.) Burm.) plus mitochondria from Willow leaf mandarin (*Citrus deliciosa* Ten.). In our work, impact of new mitochondria on fruit quality was studied during the maturity period. We observed that the cybrid was different from willow leaf mandarin and close to lemon parent. Organic acids level is slightly increased in the cybrid fruit pulp compared to Eureka lemon. No significant difference is observed in sugars and carotenoids between the cybrid and the lemon. The results confirm that mains genetic information for sugars, organic acids and carotenoids biosynthesis are contained in the nucleus. Cybridisation should be used in *citrus* as a strategy to breed specific traits associated with mitochondrial genomes such as male sterility without affecting the main organoleptic and nutritional qualities.